

**Memorandum for Record**

**Subject:** Recommendations for Minimum Separation distances (MSD) for Tourtelot OE Removal Action, Former Benicia Arsenal.

**Summary:** A technical evaluation of the Most Probable Munitions (MPM) and Minimum Safe Distance has been completed based on the latest available information, and the guidance that would apply if the Corps of Engineers were conducting the work as a Formerly Used Defense Site (FUDS). This memorandum updates the memorandum dated 29 September 2000. Guidance applicable to OE removals at FUDS sites includes guidance from the Department of Defense (DOD), Department of Army (DA), U.S. Army Corps of Engineers (USACE) and Corps Huntsville Center (HNC). The analysis and findings would be applicable to Sectors 3A and 3B, including the potential expansion area adjacent to the sectors, that were recommended for a removal action in the Engineering Evaluation/Cost Analysis (EE/CA) prepared by HNC for the FUDS program.

We have identified the appropriate MPM and MSD for each of the work areas within Sectors 3A and 3B that the Corps of Engineers would use if it were executing the removal action. These are based on an un-armed 37 MM projectile and an un-armed 60 MM Mortar.

The City of Benicia is planning to do additional actions outside the areas recommended for removals in the EE/CA. These areas do not fall within the normal Corps of Engineers OE removal categories and the normal MSD definition process would not be applicable.

However, if the removal action in the EE/CA Sector 3A or Sector 3B removal areas resulted in finding live ordnance items at the edge of the planned removal areas, the normal Corps of Engineers procedure would be to incrementally expand the removal action into the adjacent area until no further OE items are located. During the search for OE items in such an expansion area, the MSD for the MPM in the adjacent Sector A or Sector B area would continue to be used.

The MSD for sector 3A, 3B, and the expansion area would be based on a 1 Hazardous Fragment in 600 Square Feet MSD. In all these areas, a 200 feet arc would extend outward from the edge of intrusive work areas. (See map figures 1, 2, and 3)

The role of CESPK in these efforts is limited to that of providing guidance, technical reviews, site support, and advice to the City of Benicia as described in the MOA with the City of Benicia. Approval of work plans and the adoption of appropriate MSD will be up to the authorities responsible for conducting the OE removal and approving the actions.

**Technical Evaluation:** In Sector 3A, a 60 MM mortar has been identified as the MPM, and would have a fragmentation distance of 1080 feet. Since the munitions are not likely to be armed, it would be appropriate to a 1 Hazardous Fragment in 600 Square Feet MSD with a minimum separation distance of 200 feet.

The sector 3B area has a 37 MM projectile identified as the MPM. The 37 MM projectile has a fragmentation distance of 1181 feet. Since the munition is not likely to be armed, it would be